#### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

### (19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 15 April 2004 (15.04.2004)

PCT

### (10) International Publication Number WO 2004/031332 A2

C10M 171/00 (51) International Patent Classification<sup>7</sup>:

(21) International Application Number:

PCT/EP2003/050674

(22) International Filing Date: 1 October 2003 (01.10.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

0222728.8

1 October 2002 (01.10.2002)

(71) Applicant (for all designated States except US): SHELL INTERNATIONALE RESEARCH MAATSCHAPPLJ B.V. [NL/NL]; Carel van Bylandtlaan 30, NL-2596 HR The Hague (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): SANT, Peter [GB/GB]; Pool lane, ince, Chester, Cheshire CH2 4NU (GB). TAYLOR, Robert, Ian [GB/GB]; Pool Lane, ince, Chester, Cheshire CH2 4NU (GB).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



(57) Abstract: A lubricating oil identification system comprising a lubricating oil composition comprising a passive marker which passive marker is capable of detection in situ by a detector present in a machine and a detector for detecting in situ a passive marker in said oil composition when the oil composition is in the machine. Lubricating oil compositions and machines suitable for use in this identification system and methods of operating said machines are also disclosed.

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G01N33/28

According to International Patent Classification (IPC) or to both national classification and IPC

#### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) IPC 7 G01N C10M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX, FSTA

0-1	Citables of decreased with tall attended	
Category °	Citation of document, with Indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 928 954 A (ROGINSKI ROBERT T ET AL) 27 July 1999 (1999-07-27) cited in the application abstract; figures 1,2 column 14, line 60 -column 15, line 14 column 16, line 1 - line 15	1,2,5, 7-12
Y		3,4,6
Y	US 6 422 061 B1 (B0EHR CHRISTOPHER K ET AL) 23 July 2002 (2002-07-23) abstract; figures 13-16 column 3, line 10 - line 53 column 26, line 16 -column 27, line 23	. 3
Y	US 5 602 042 A (FARBER FREDRIC) 11 February 1997 (1997-02-11) abstract; figures 1-3	4,6

Further documents are listed in the continuation of box C.	Y Patent family members are listed in annex.				
Special categories of cited documents:  'A' document defining the general state of the art which is not considered to be of particular relevance  'E' earlier document but published on or after the international filling date  'L' document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citalion or other special reason (as specified)  'O' document referring to an oral disclosure, use, exhibition or other means  'P' document published prior to the international filing date but later than the priority date claimed	<ul> <li>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</li> <li>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</li> <li>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</li> <li>"&amp;" document member of the same patent family</li> </ul>				
Date of the actual completion of the international search  22 March 2004	Date of mailing of the international search report  31/03/2004				
Name and mailing address of the ISA  European Patent Office, P.B. 5818 Patentlaan 2  NL - 2280 HV Rijswijk  Tel. (+31-70) 340-2040, Tx. 31 651 epo ni,  Fax: (+31-70) 340-3016	Authorized officer  Hanisch, C				

# INTERNATIO SEARCH REPORT

Inten plication No
PCT/EP 03/50674

Category °	ation) DOCUMENTS CONSIDERED TO BE RELEVANT  Citation of document, with indication, where appropriate, of the relevant passages	Delouget to chies the
	ondustrion, while intercation, where appropriate, or the relevant passages	Relevant to claim No.
X	US 5 525 516 A (CUSHMAN MICHAEL R ET AL) 11 June 1996 (1996-06-11) cited in the application abstract; figures 1,2 column 1, line 53 -column 2, line 45	1,2,5, 7-12
Y		3,4,6
Y	US 5 571 401 A (LEWIS NATHAN S ET AL) 5 November 1996 (1996-11-05) abstract; figures 1,4 column 1, line 19 - line 56 column 2, line 29 - line 38	3
Y	US 6 371 379 B1 (DAMES ANDREW NICHOLAS ET AL) 16 April 2002 (2002-04-16) cited in the application abstract column 1, line 7 - line 13 column 2, line 26 - line 29 claims 27,28	4,6
X	WO 99 52708 A (LUMINEX CORP) 21 October 1999 (1999-10-21) abstract page 1, line 24 - line 30	1,2,5-12
X	US 6 432 715 B1 (KRUTAK SR JAMES JOHN ET AL) 13 August 2002 (2002-08-13) abstract column 10, line 33 - line 42	1,2,5, 7-12
A	WO 01 90539 A (REMMLINGER HUBERT; ZAHNRADFABRIK FRIEDRICHSHAFEN (DE); GIERER GEOR) 29 November 2001 (2001-11-29) abstract; figure 1 page 2, line 1 - line 14	9-12

# INTERNATION SEARCH REPORT

PCi/En-03/50674

				FC1/E1-03/500/4			
	ent document n search report		Publication date		Patent family member(s)		Publication date
US 5	5928954	A	27-07-1999	US US US	5723338 5710046 5843783	Α	03-03-1998 20-01-1998 01-12-1998
US 6		B1	23-07-2002	 US AU	6085576 5621200	Α	11-07-2000 09-01-2001
				CA EP	2375516 1194762	A1	28-12-2000 10-04-2002
				JP WO	2003502661 0079243	T A1	21-01-2003 28-12-2000
				US	2002178789		05-12-2002
				AU AU	756085 3105099		02-01-2003 11-10-1999
				AU	4970600	Α	21-09-2000
i				CA	2325137		23-09-1999
				CN Ep	1301342 1171823		27-06-2001 16-01-2002
				EP	1064530	A2	03-01-2001
				JP	2003526768		09-09-2003
				JP NZ	2002538457 507177		12-11-2002 26-09-2003
				WO	0052444		08-09-2000
				WO	9947905		23-09-1999
				US US	2002124631 6234006		12-09-2002 22-05-2001
				US	2001039824		15-11-2001
1				US	2001008816	A1	19-07-2001
				AU CA	1655101 2389708		14-05-2001
				EP	1264251		10-05-2001 11-12-2002
				WO	0133212	A2	10-05-2001
				US US	2003216869 6606566		20-11-2003
							12-08-2003
		A 	11-02-1997 	NONE			
US 5	5525516 	A 	11-06-1996 	WO ZA	9610620 9508247 		11-04-1996 24-04-1996 
. US 5	5571401	Α	05-11-1996	AT	188291		15-01-2000
				AU AU	705825 5372896		03-06-1999 16-10-1996
				CA	2215332	A1	03-10-1996
				CN	1184530		10-06-1998
			٠	DE DE	69605906 69605906		03-02-2000 13-07-2000
				DK	820585	T3	19-06-2000
				EP	0820585	A1	28-01-1998
				EP ES	0950895 2144737		20-10-1999 16-06-2000
				FI	973802		29-09-1997
				GR	3033092	T3	31-08-2000
				JP PT	11503231 820585		23-03-1999 30-06-2000
				RU	2145081		27-01-2000
				US	5951846	Α	14-09-1999
				US US	5959191 6013229		28-09-1999 11-01-2000
	naten) family anney) / luly 10			US	0013229	<u>м</u>	11-01-2000

### INTERNATION SEARCH REPORT

PC1/E1-03/50674

Patent document cited in search report						
anca in occaron report		Publication date		Patent family member(s)		Publication date
US 5571401	A		WO	9630750	A1	03-10-1996
05 55/1401	^		ÜS	5891398		06-04-1999
			US	6170318		09-01-2001
			US	6017440		25-01-2000
			US	6093308		25-07-2000
			US	2003159927		28-08-2003
			US	6537498		25-03-2003
			US	2004033165		19-02-2004
			US	6331244		18-12-2001
			US	5698089		16-12-2001
			US			
				6010616	A 	04-01-2000
US 6371379	B1	16-04-2002	AT	221209		15-08-2002
			AU	4725096		18-02-1997
			CA	2227170	A1	06-02-1997
			CN	1193388	A,B	16-09-1998
			DE	69622566	D1	29-08-2002
			DE	69622566	T2	30-01-2003
			EP	0839330		06-05-1998
			ES	2180734	T3	16-02-2003
			WO	9704338		06-02-1997
			JP	11509323	T	17-08-1999
			RU	2183033	C2	27-05-2002
WO 9952708	Α	21-10-1999	AU	3555599	A	01-11-1999
	••		EP	1079967		07-03-2001
			WO	9952708		21-10-1999
US 6432715	B1	13-08-2002	AU	740449	B2	01-11-2001
00 0101710		10 00 2002	AU	1942499		15-09-1999
			BR	9815689		24-10-2000
			CA	2321838		02-09-1999
			EP	1058836		13-12-2000
			ĴΡ	2002505426		19-02-2002
			WO	9944044		02-09-1999
			US	2003036201		20-02-2003
		29-11-2001	DE	10025690	A1	29-11-2001
MO 0190539			<i>-</i>	10050000	, · · ·	TT
WO 0190539	••		WO	0190539	A1	29-11-2001